

Obesity in the US: What, Why, and How?

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Objectives

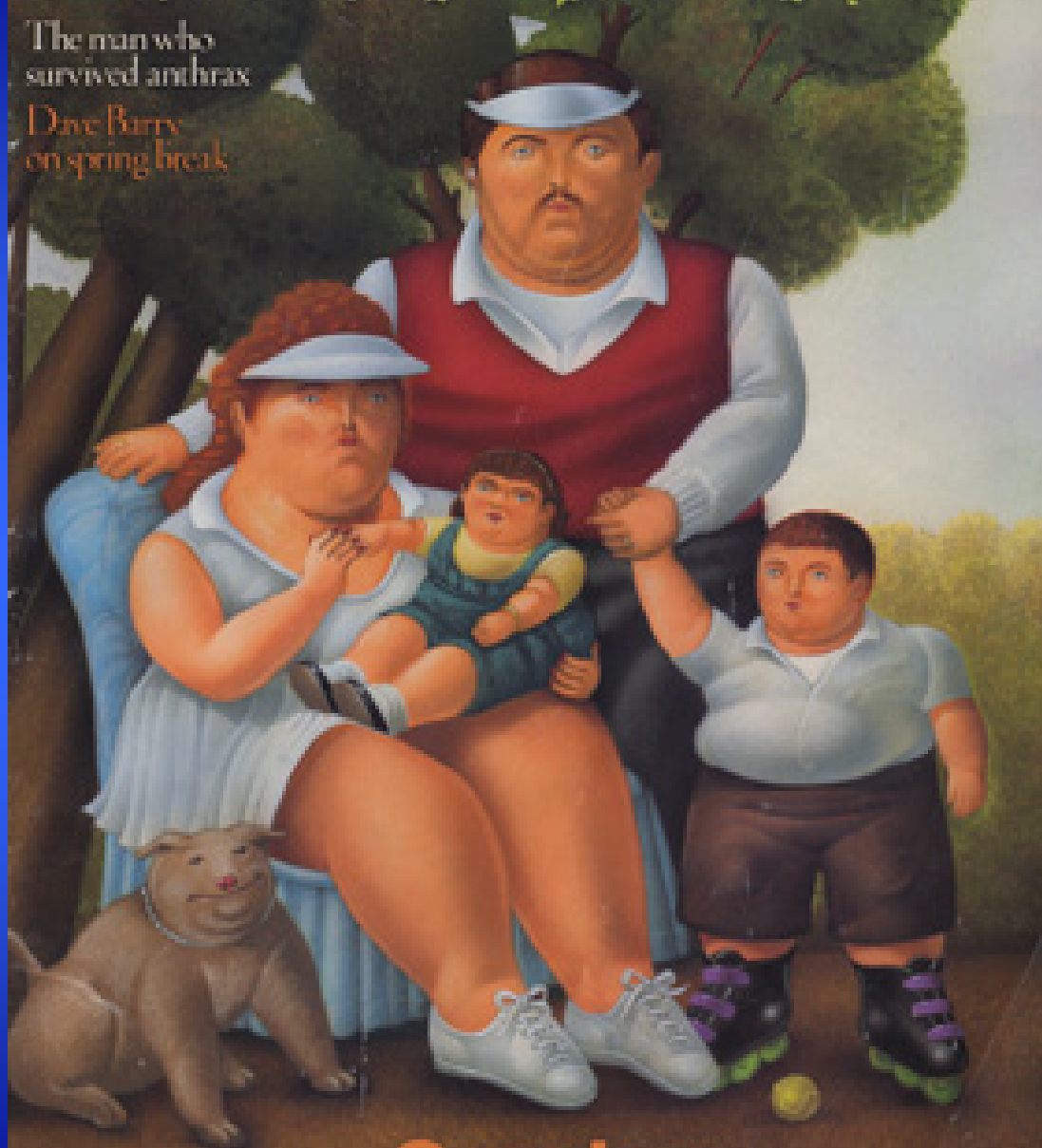
- **WHAT** is obesity? How does it differ from overweight? How to we measure it?
- **WHY** do we care?
- **WHY** do some people become obese?
- **WHAT** is the role of sedentary behavior in obesity development?
- **WHAT** is a healthy diet?
- **HOW** do we prevent obesity?

MARCH 30, 2003

The Washington Post Magazine

The man who
survived anthrax

Dave Barry
on spring break



America's Growing Families

Can anything stop the obesity epidemic? By Peter Perl

What is Obesity?

Obesity is an
excess of body fat

from L. *obesitas* "fatness, corpulence"

One Can be Overweight – But Not Fat

- **OBESE 210lbs**



- **OVERWEIGHT 260lbs**



Body Mass Index (BMI)

- **BMI = weight (kg)/height (m)²**
- **Measure of weight adjusted for height**
- **Highly correlated with body fat**
 - Relationship varies with age, gender, ethnicity, and body build
- **Easy to obtain**
- **Does not distinguish between body fat and muscle**

Obesity Classification for Adults

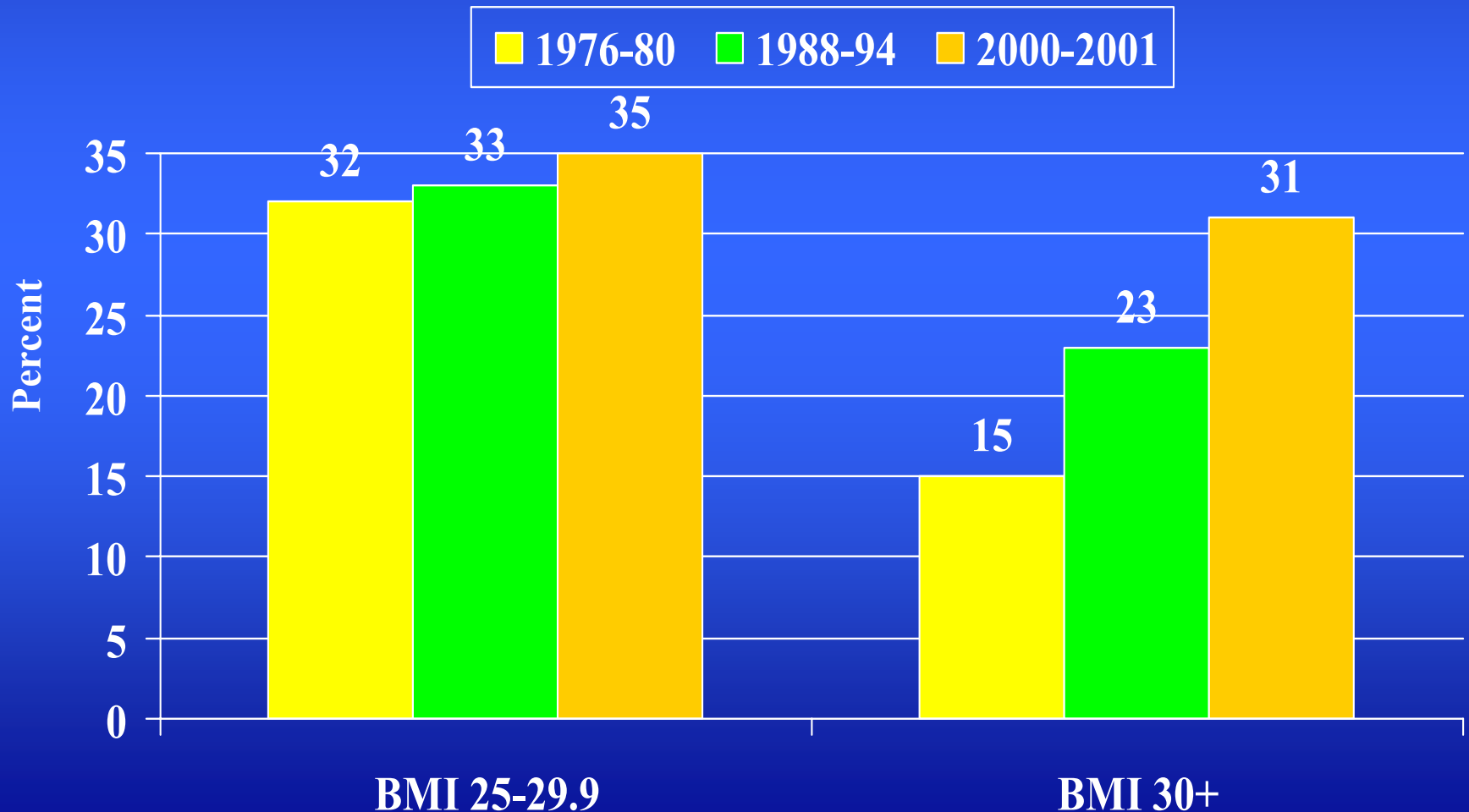
Overweight: BMI ≥ 25 kg/m²

Obesity: BMI ≥ 30 kg/m²

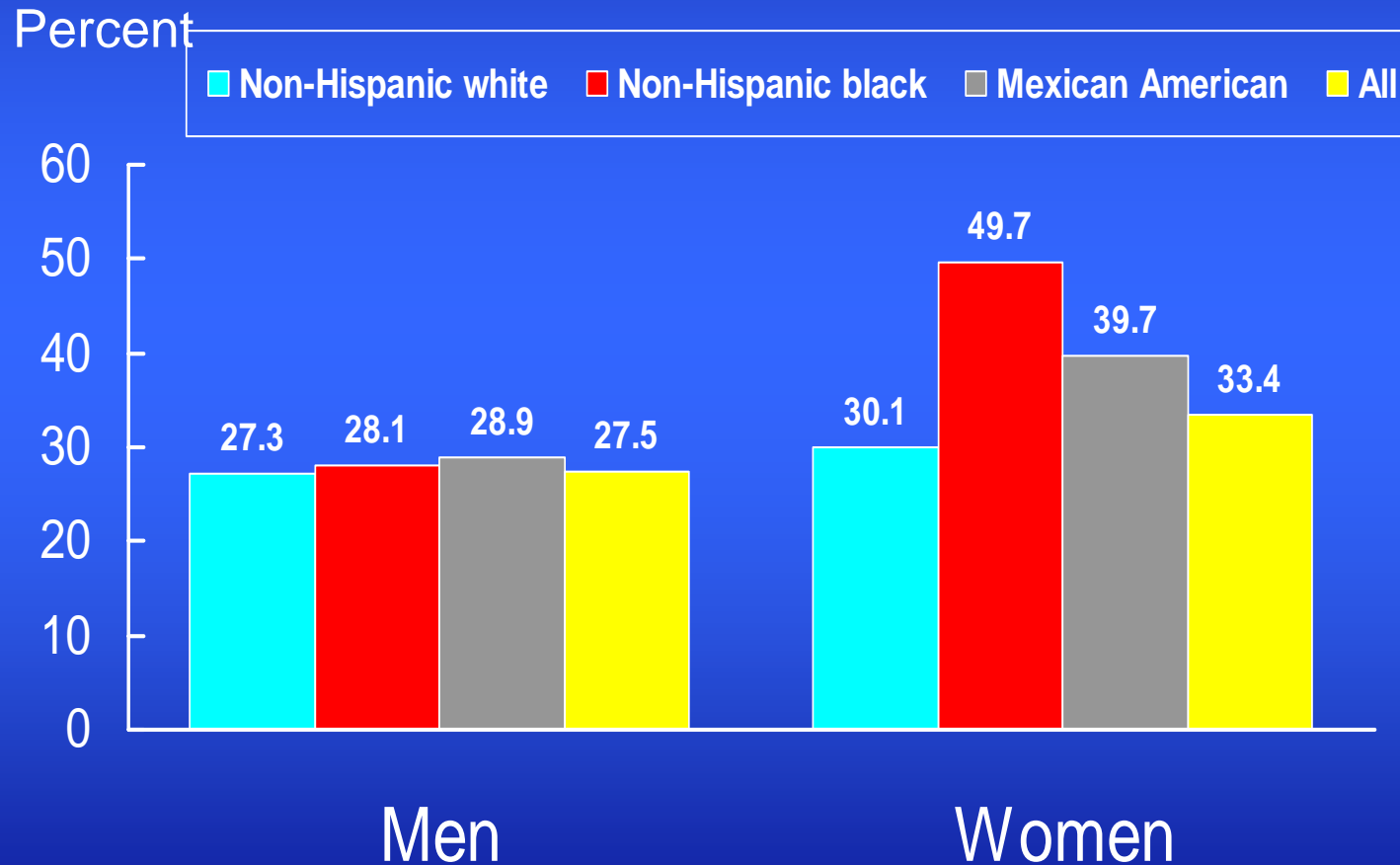
<u>BMI</u>		<u>Obesity Class</u>
25.0 – 29.9	Overweight	
30.0 – 34.9	Obesity	I
35.0 – 39.9	Obesity	II
<u>≥ 40.0</u>	Extreme Obesity	III

NHLBI Guidelines, June 1998

Age-Adjusted Prevalence of Overweight and Obesity in Adults



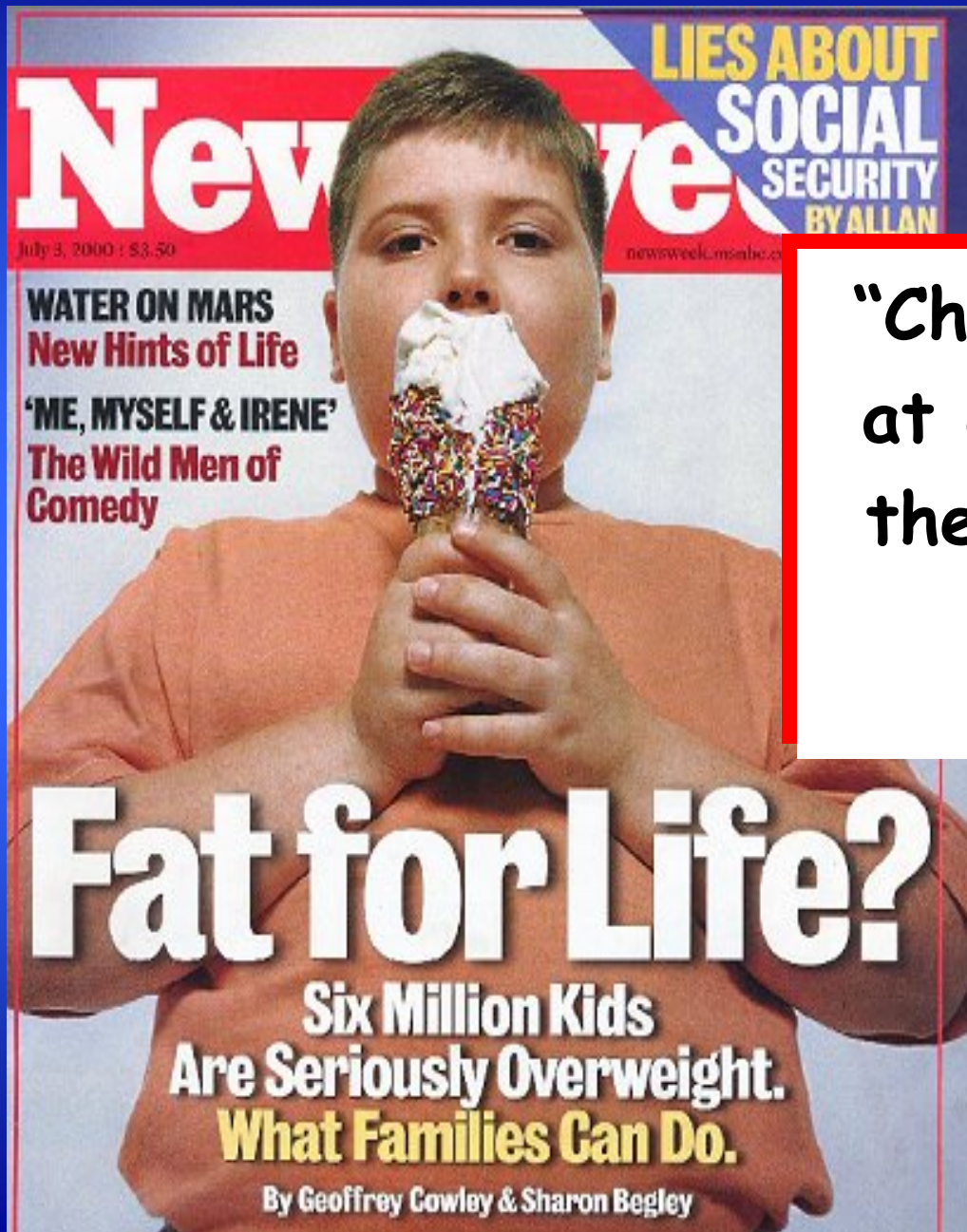
Prevalence of obesity*, 20+ yrs, by sex and race/ethnicity, U.S., 1999-2000



NOTE: * (BMI 30 +)

SOURCE: JAMA 288; 1723, 2002

Childhood Obesity Epidemic



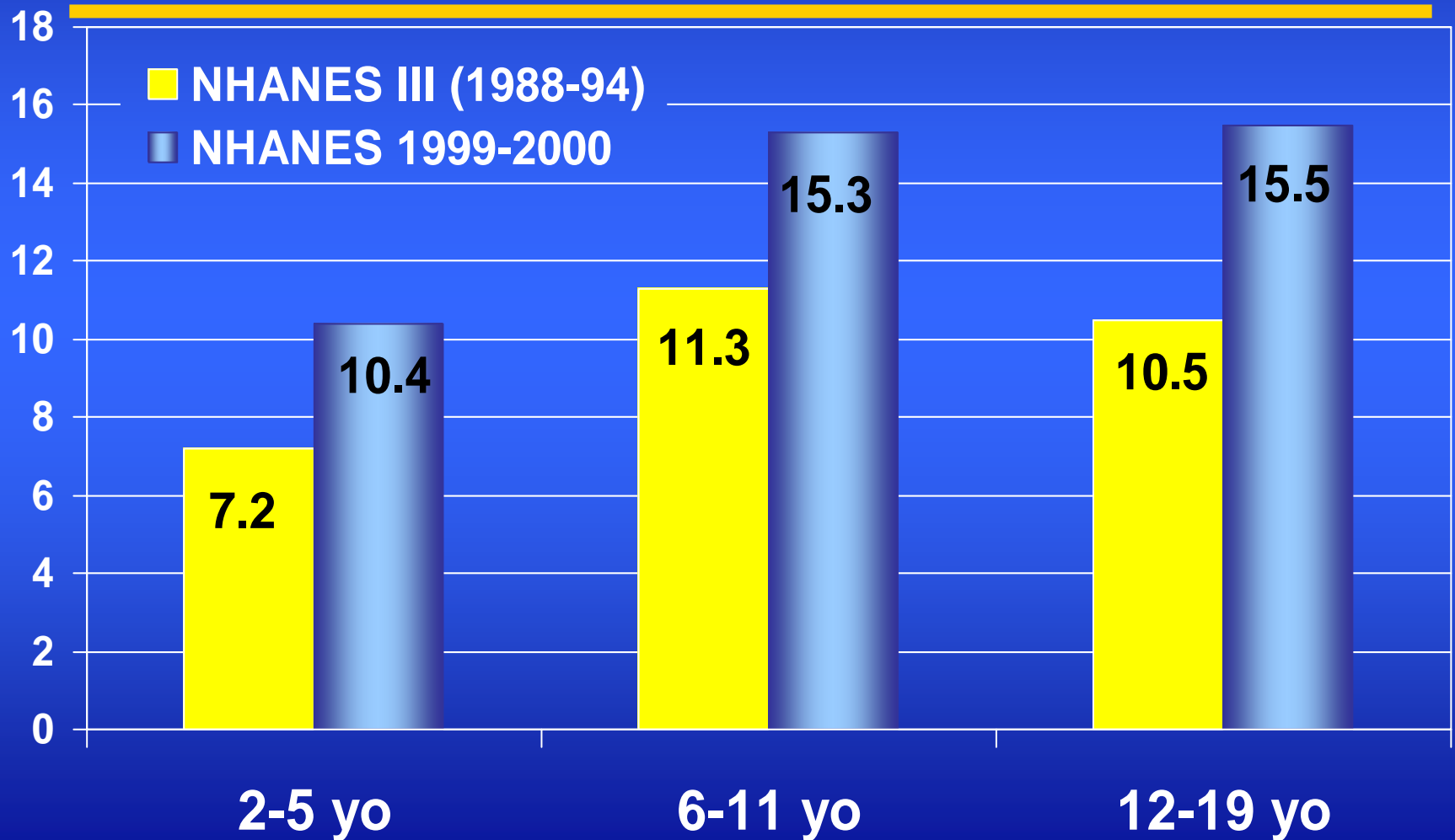
“Childhood obesity is at epidemic levels in the United States.”

**- David Satcher
US Surgeon General**

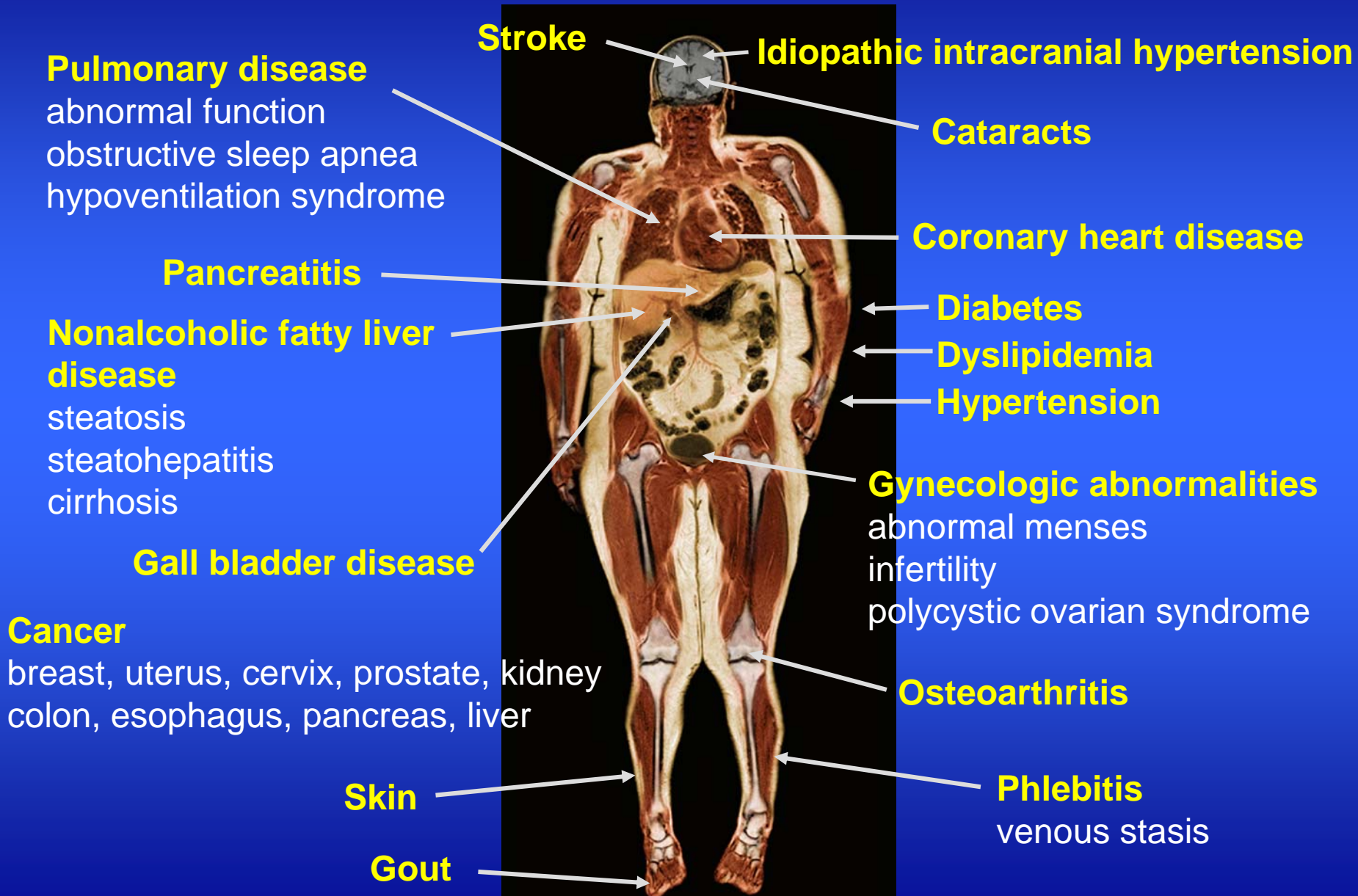
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Childhood Obesity Epidemic

Prevalence of Overweight by Age (>95th%tile) and NHANES period



Medical Complications of Obesity



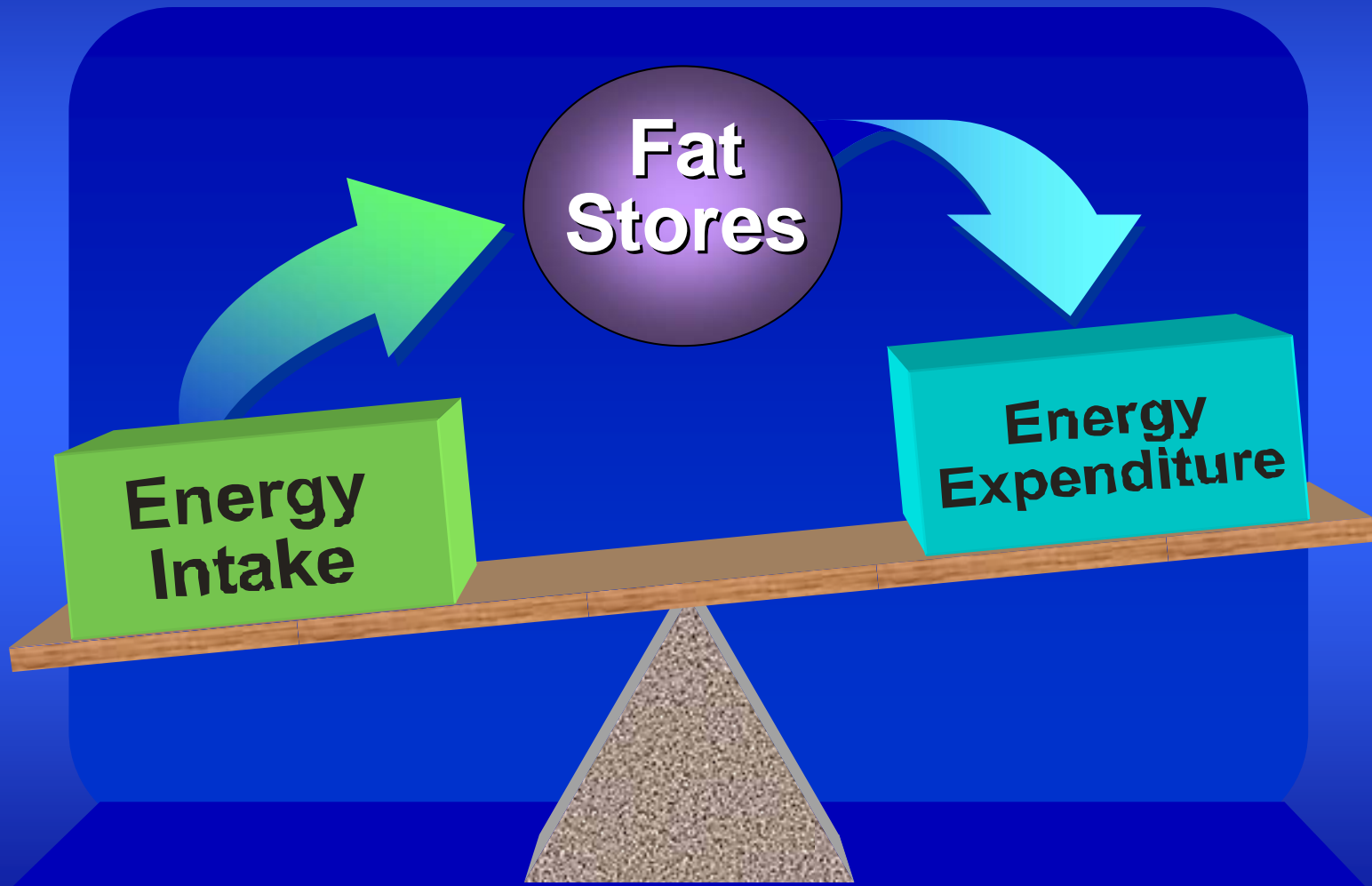
Health Risks of Overweight in Children/Adolescents

- 60 percent of overweight children have a least one cardiovascular risk factor
- Overweight in childhood predicts adult disease
- Overweight children and adolescents more likely to become obese adults

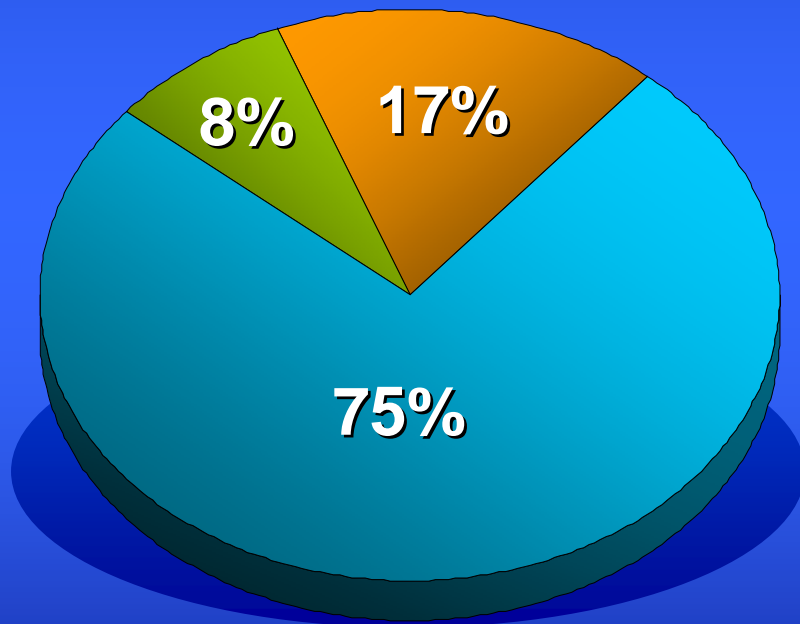
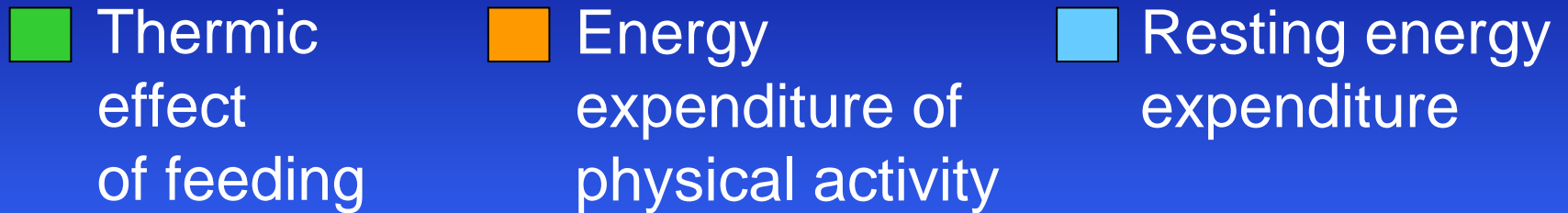
Overweight Children/Adolescents at Risk for...

- Fatty liver
- Sleep apnea
- Early puberty
- Orthopedic disorders
- Insulin resistance/Type 2 diabetes
 - Increasing proportion of diabetes diagnosed in children/adolescents

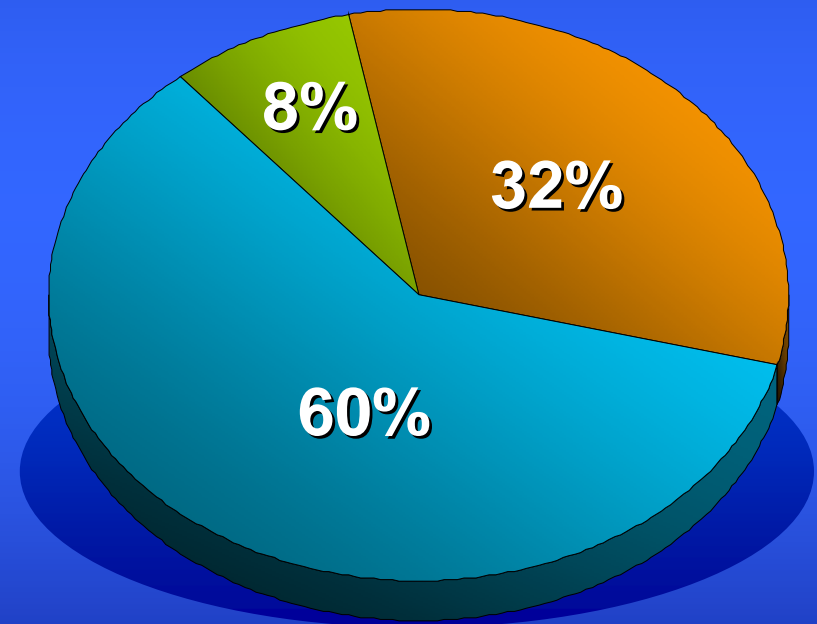
Obesity Is Caused by Long-Term Positive Energy Balance



Components of Daily Energy Expenditure

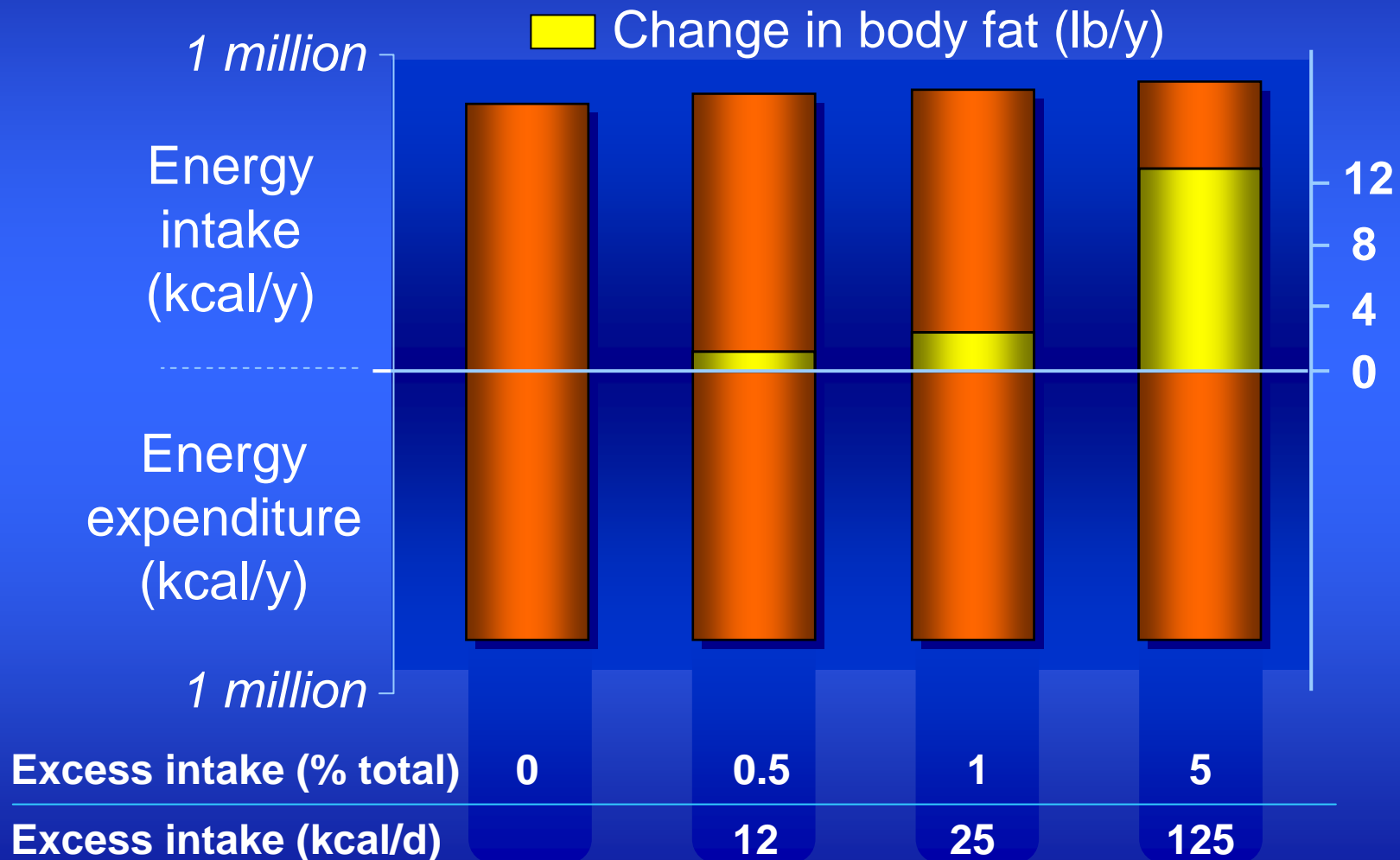


Sedentary Person
(1800 kcal/d)

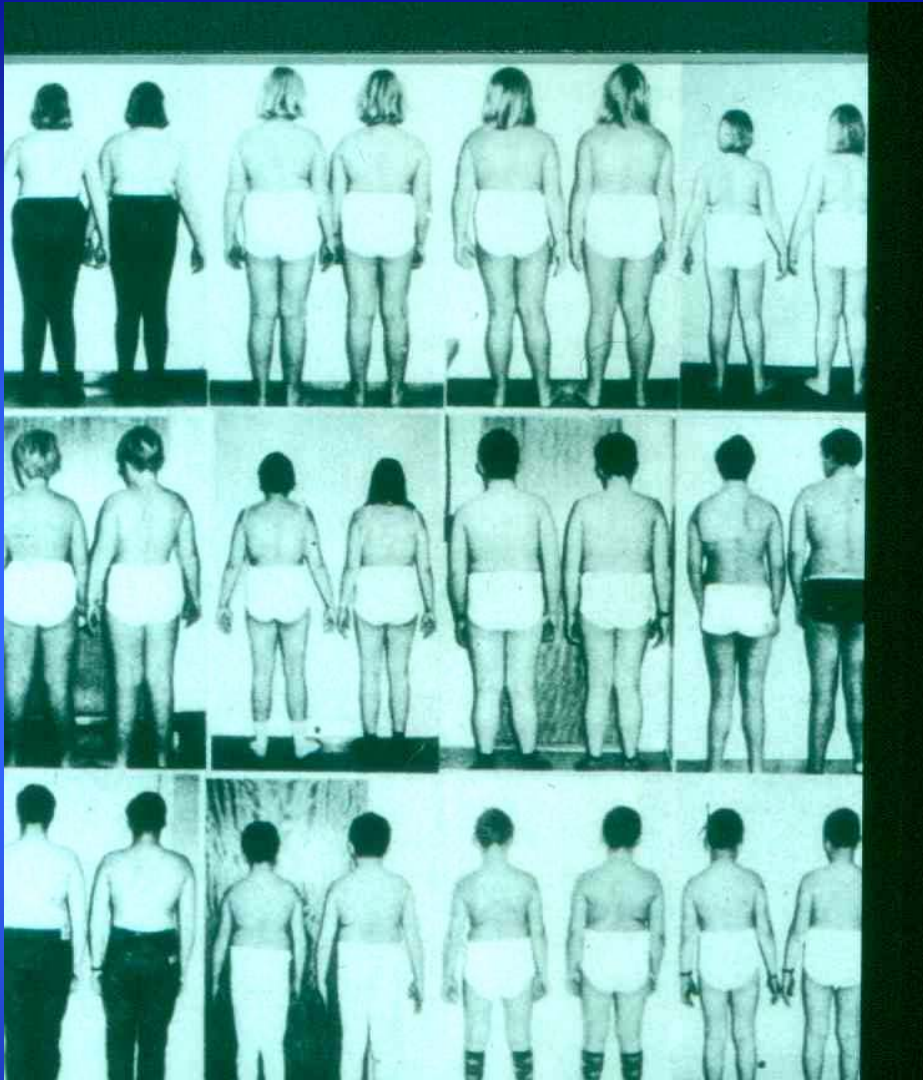


Physically Active Person
(2200 kcal/d)

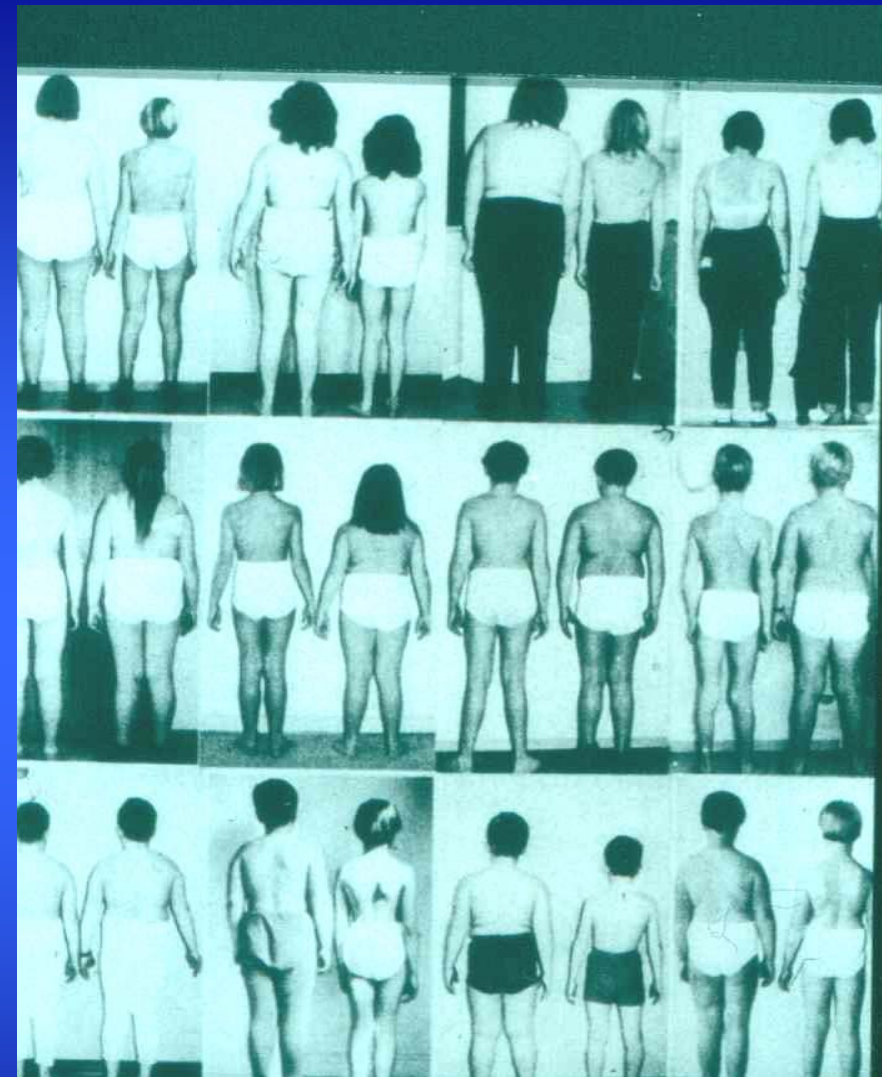
Cumulative Effect of Small Daily Imbalances in Energy Intake on Body Fat Mass



*Why do people
become obese?*



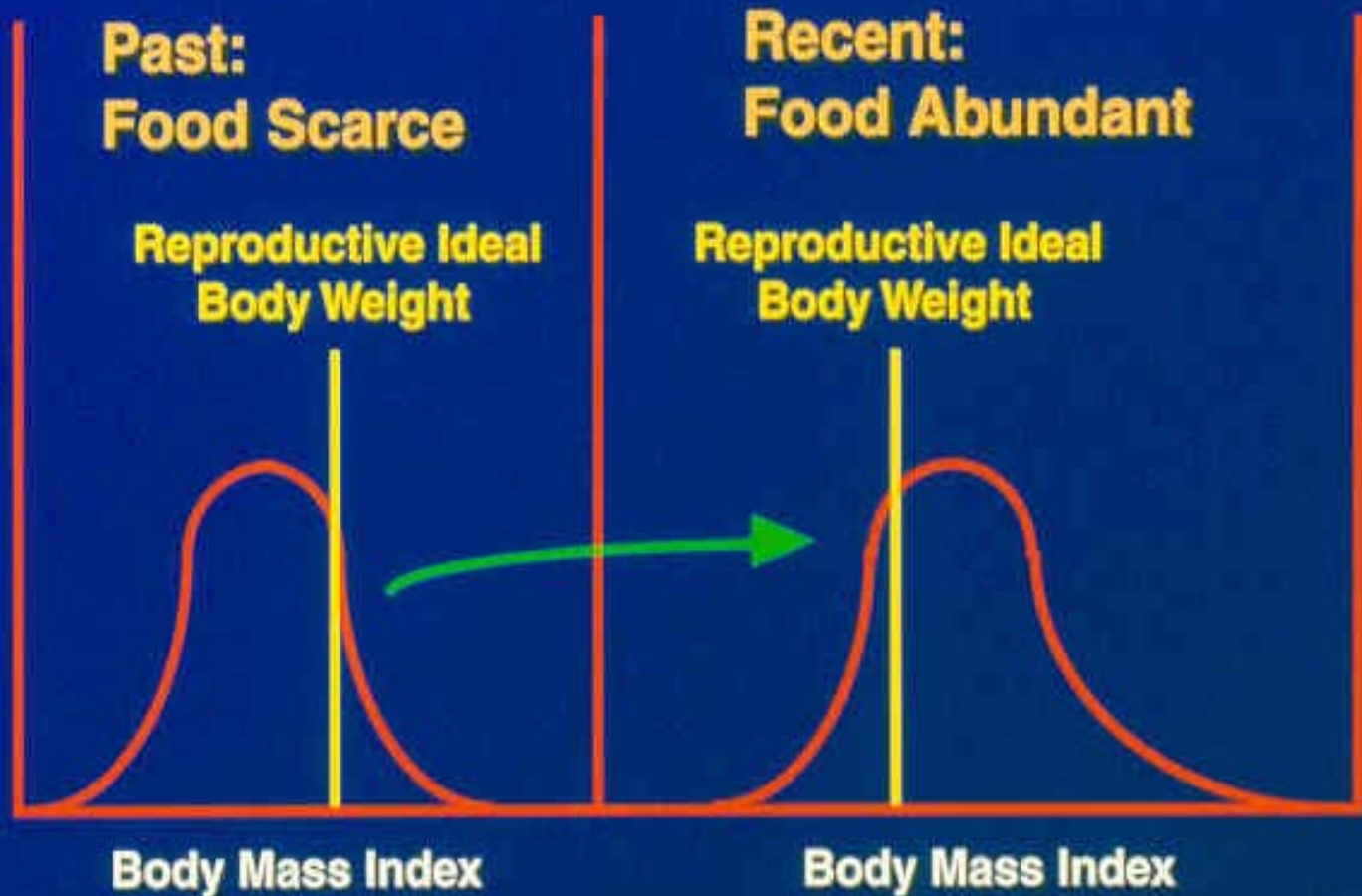
Identical Twins



Fraternal Twins



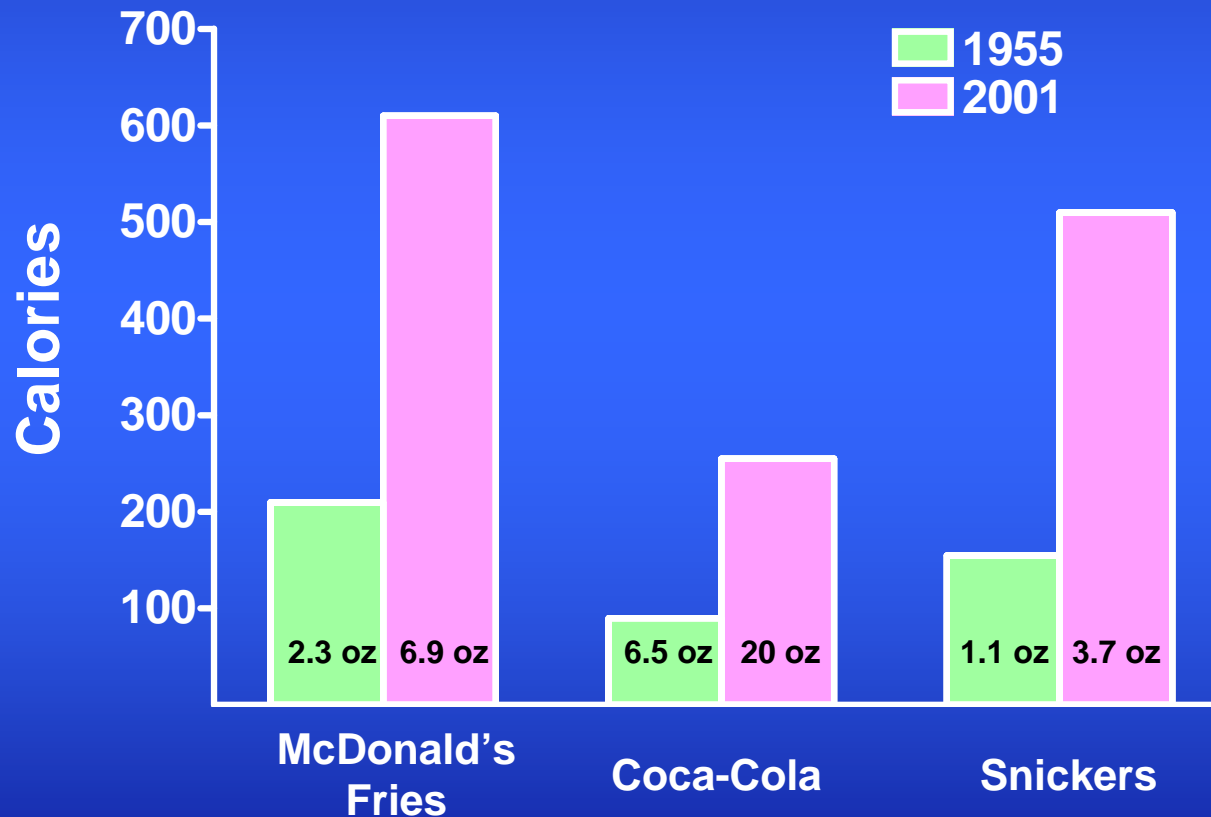
Ontogeny of Thrifty Genes



Environmental Changes In Intake

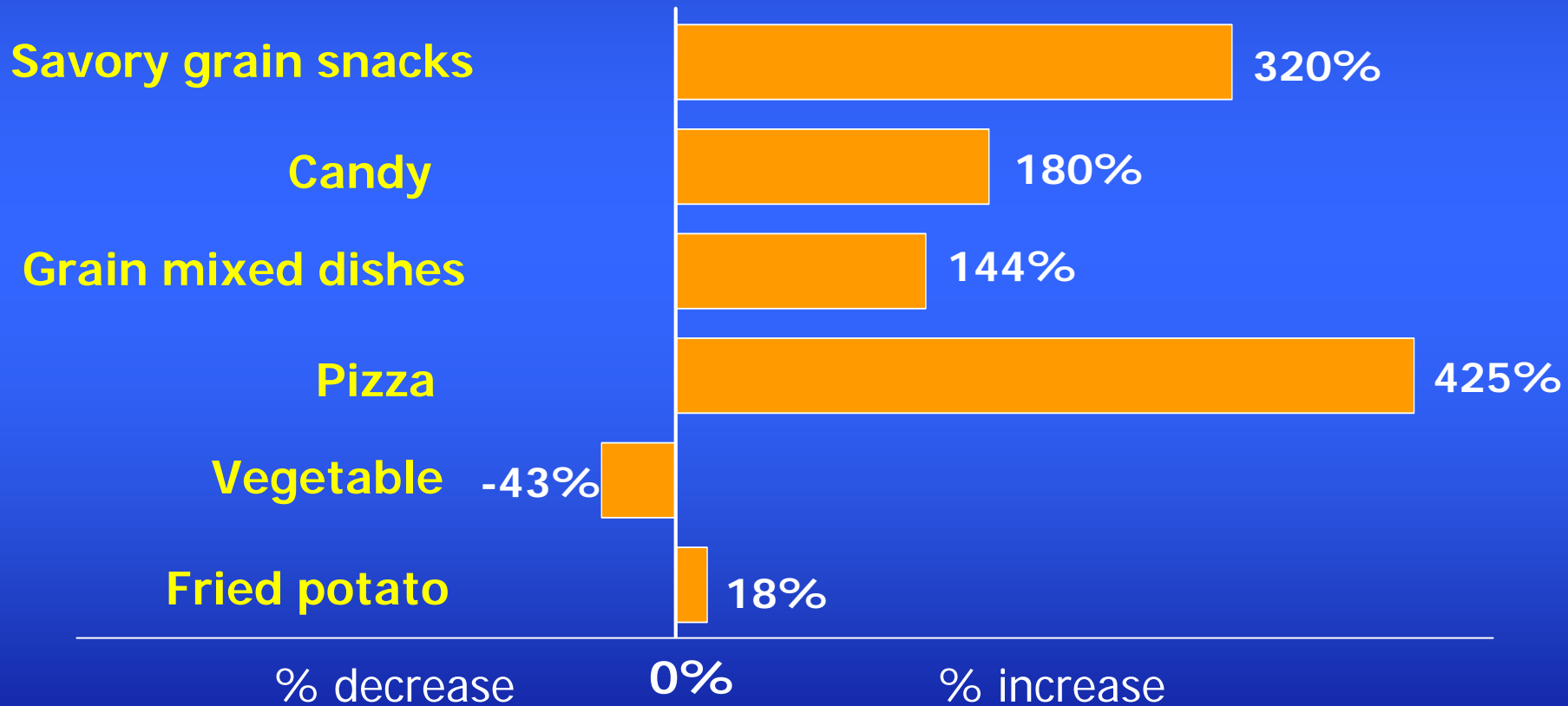
- Increased availability of inexpensive, palatable high-fat food
- Increase in meals away from home
- Increased portion size-home and restaurant

Portion sizes have increased over the years



Nutrition Action, 2001.

Percent Change in Mean Intake from 1977-78 Children 6-11 years old

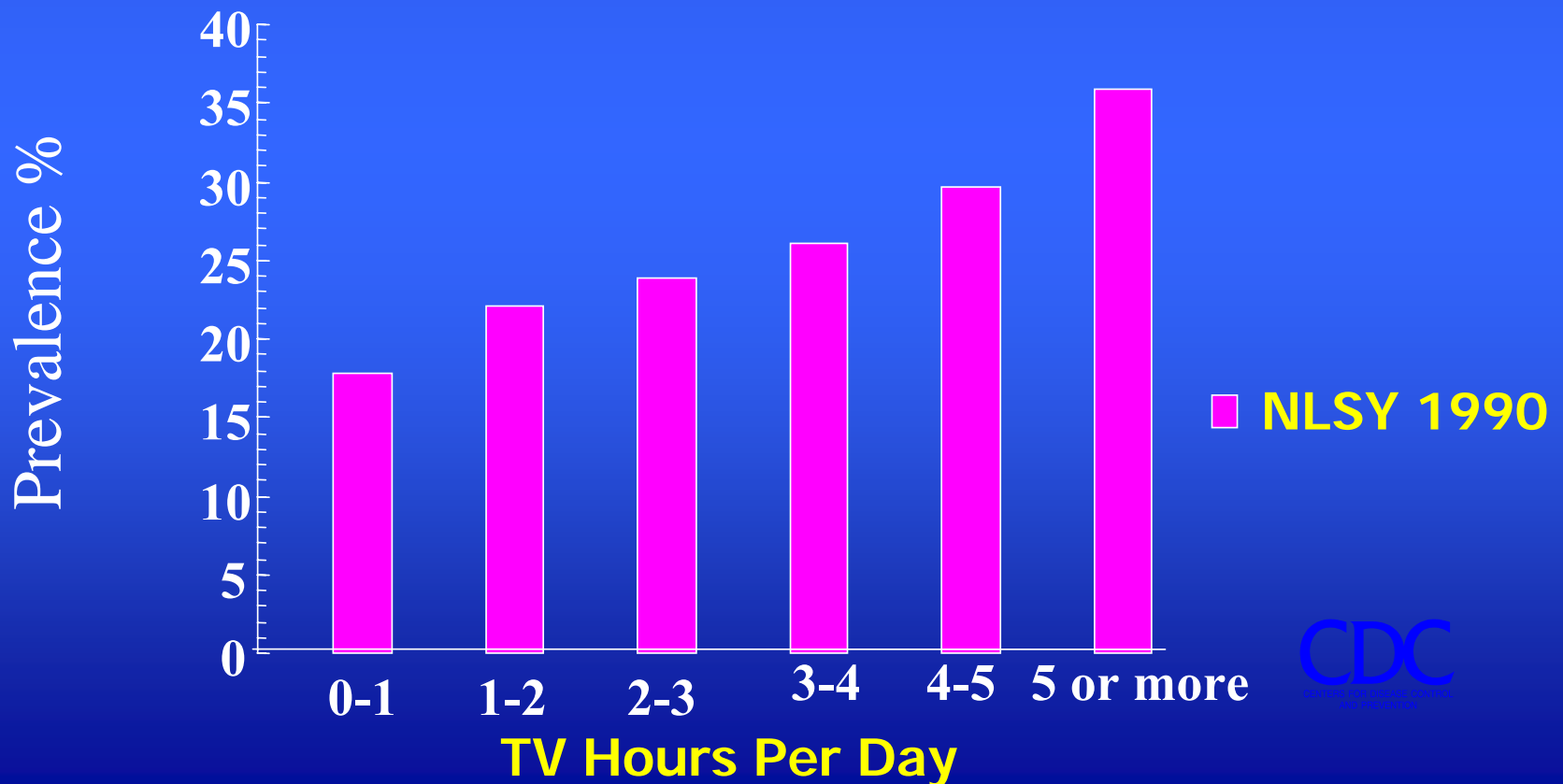


Source: L. Cleveland USDA; NFCS 1977-78 and WWEIA, NHANES 2001-02, 1 day

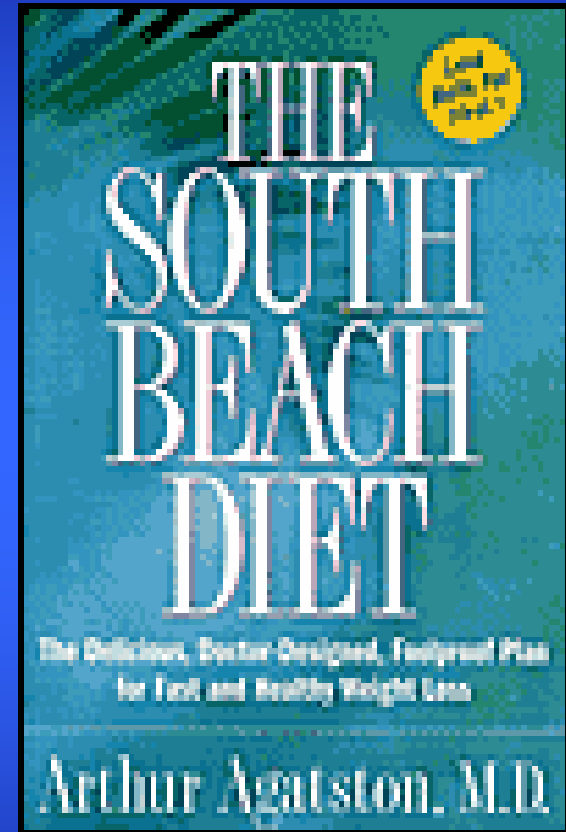
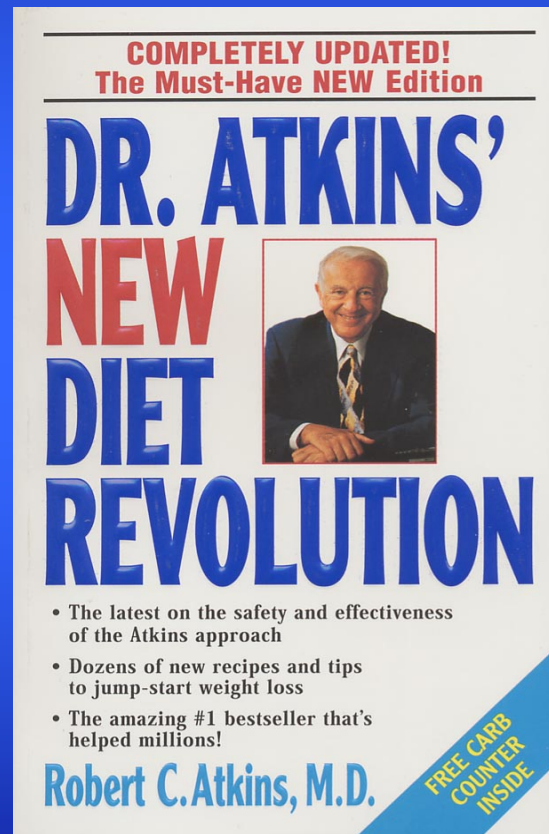
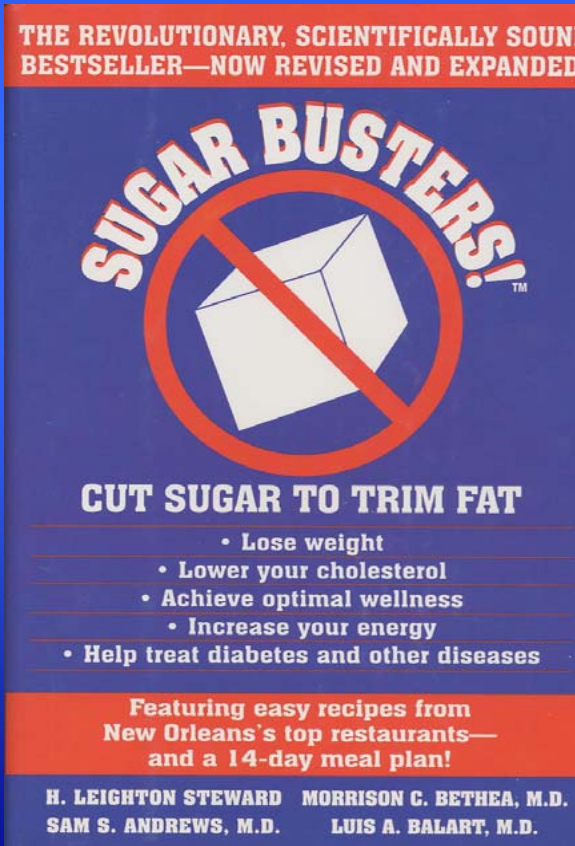
Environmental Changes in Physical Activity

- **Decreased physical activity in schools/workplace/communities**
 - Few schools offer daily P.E.
 - Fewer jobs require manual labor
 - Lack of sidewalks
- **Increased sedentary behavior**
 - Office and home
 - Computer, video games, television

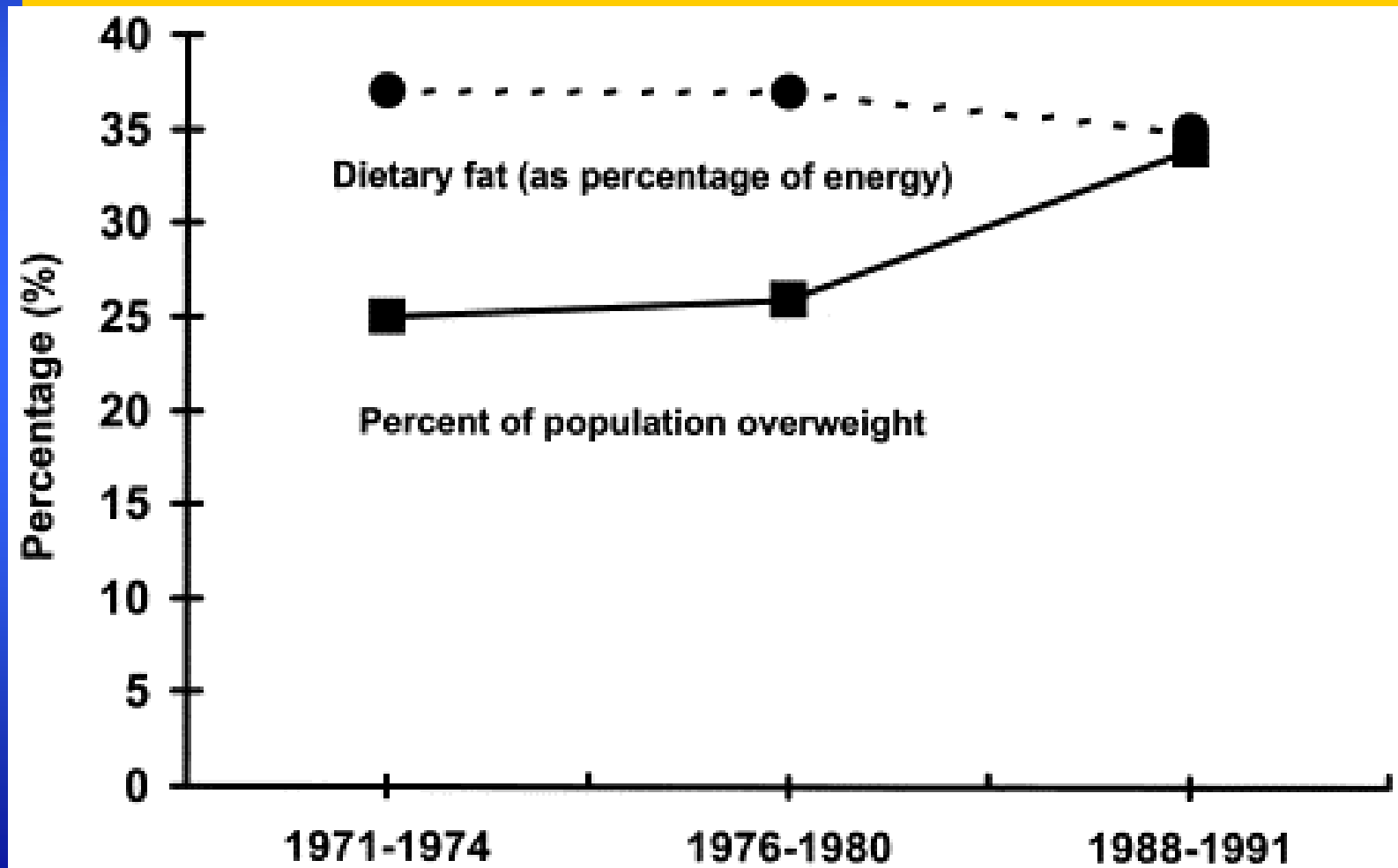
Prevalence of Overweight by Hours of TV per Day: NLSY Youth Aged 10-15 in 1990



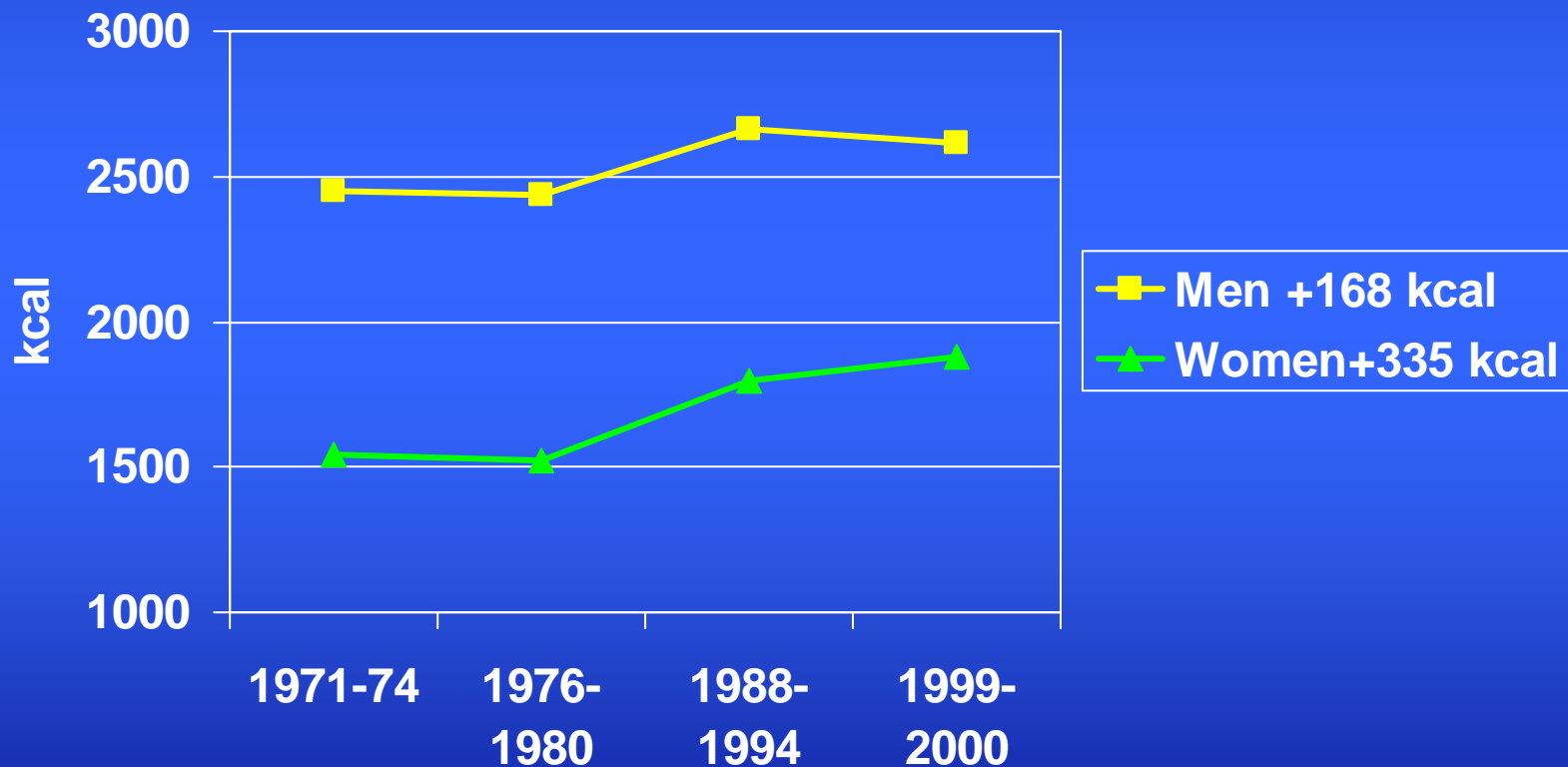
What about type of diet?



Change in Dietary Fat as Percentage of Energy vs. Percentage of Population Overweight

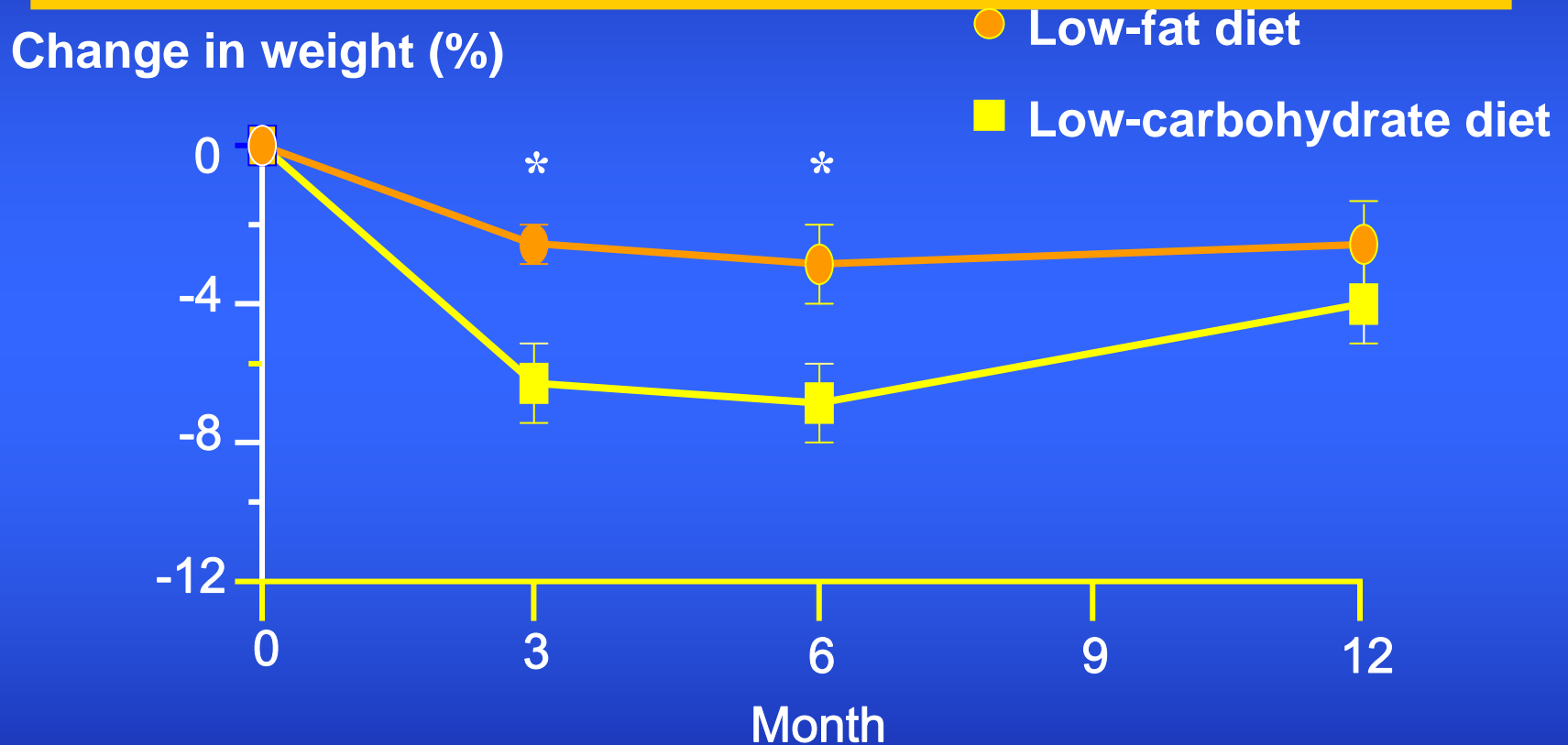


Reported Energy Intake in the US: 1971-2000



- We are eating a smaller *percentage* of our calories from fat...but
 - *We are eating more total calories*
 - *Carbohydrate calories increasing most*
- We are less active/more sedentary
- All of this leads to a heavier population

Randomized Controlled Trial of Atkins Diet on Body Weight



*p<0.05

Why Greater Weight Loss?

- **Calories, calories, calories**
- **Increased satiety**
- **Increased structure**



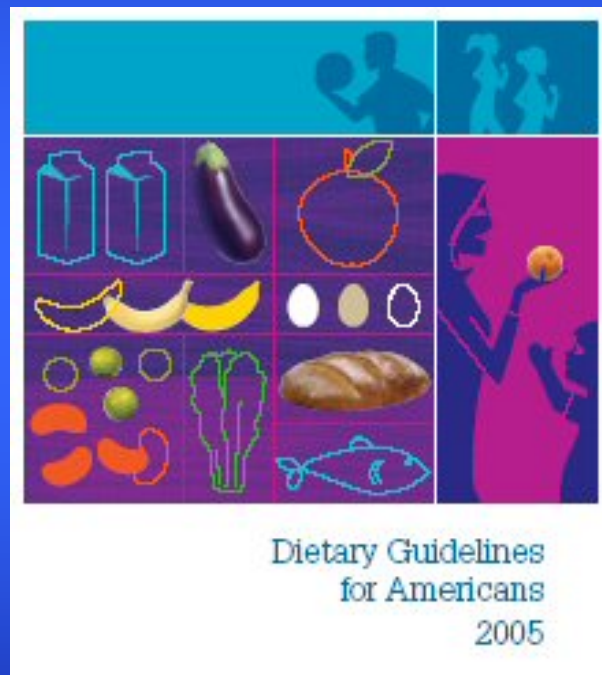


Energy Density: Modifying a favorite food “feel full on fewer calories”



Rolls, Nutrition Today, April 2003

Dietary Guidelines for Americans



*How can we prevent
overweight/obesity without
promoting the development of
eating disorders, body
dissatisfaction, or further
stigmatization of obese
individuals?*

Emphasize Positive Behaviors

- **Promotion of Physical Activity**
 - Environmental changes
 - Increased physical activity in schools, worksites, community (for kids – AT LEAST 60 minutes/d)
 - Enhanced recreational activities
- **Promotion of Healthful Eating**
 - Increased fruit/vegetable consumption
 - Decreased energy density
 - Consumption of low-fat or nonfat dairy products
 - Replacement of sugar-sweetened soft drinks with milk or water (NOT sports drinks/juice)

AMAZING!



INTRODUCING LUNCHABLES MEGA PACK

**LUNCHABLES MEGA PACK HAS 40% MORE FOOD THAN ORIGINAL LUNCHABLES LUNCH COMBINATIONS—
AND A WIDE VARIETY OF MEAL OPTIONS TO CHOOSE FROM...**

Decrease Sedentary Behaviors



- Limit
 - Television
 - Computer/
 - Video Games

Encourage an Active Lifestyle



Become an Activist!

Help support environmental interventions to promote...

- **Decreased sedentary behaviors**
- **Enhanced access to safe places to play**
- **Increased availability of low-cost, healthful foods**
- **Increased knowledge about the benefits of proper nutrition and physical activity**
- **Teach children/adults to be “wise consumers”**



